REMARKS

The specification was amended to add reference characters inadvertently included on Figure 1b but not included in the specification. An abstract has been added corresponding to the abstract filed with the application as part of the PCT publication. Claims 15, 26, 29, 35, 36 and 42 were amended to correct minor errors. The amendments are intended as clarifications and are not seen as required to meet the statutory requirements for obtaining a patent and/or as narrowing the claims. No new matter has been added. Claims 15-42 are pending in the application.

OBJECTIONS TO THE SPECIFICATION

The drawings were objected to due to the lack of reference numerals 6, 8 and 11 in the specification. This deficiency has now been corrected. An abstract was required on a separate sheet. This has been provided.

The specification was objected to under 37 C.F.R. § 1.71. According to the Office Action, the applicant has failed to provide a written description of the invention in full, clear, concise and exact terms as to enable any person skilled in the art to make and/or use the invention. Applicants respectfully traverse this objection.

The Office Action first questions how the absorbent article is modified or treated in such a way to cause the absolute value of $\Delta P=2\gamma \cos\theta m/r$ to increase. Applicants respectfully submit that this is clearly and specifically described in the specification. For example, as detailed on page 13 of the specification, $|\Delta P|$ can be caused to increase by increasing the product $|(2\gamma \cos\theta m/r)|$. The product can be increased by, for instance, influencing the wetting angle between the liquid to be sucked up and the skin or the barrier material, influencing the pore radius formed between the barrier material and the skin and influencing both wetting angle and pore radius. *Specification, page 13, lines 4-15.* Methods for effecting these changes are provided in the examples on pages 14-16, and include, for example, using an elastic film or treating the sealing edge with Vaseline. In view thereof, Applicants respectfully request that the objection to the specification on this basis be withdrawn.

The Office Action next questions the structure described on page 3. Applicants respectfully submit that what is intended is now clarified by the inserted

headings in the specification.

The Office Action next questions how the circumference of skin can be measured and how the skin of a wearer can comprise the wall of a pore. Information relating to these issues is provided at least on pages 9 and 10 of the specification and in Figures 2a and 2b. In particular, Figure 2a shows how the pore is formed with the barrier material and the skin and how to measure the circumference portion of barrier material (A) and the skin (B). In view thereof, Applicants respectfully request that the objection to the specification on this basis be withdrawn.

Finally, the Office Action objects to the specification as failing to provide proper antecedent basis for the claimed subject matter because of the term "free elastic scaling edge" in claim 29. This was a typographical error which has now been corrected.

In view of the foregoing, Applicants believe the requirements of 37 C.F.R. § 1.71 have been met and respectfully request that the objections to the specification thereunder be withdrawn.

CLAIM REJECTIONS - 35 U.S.C. § 112

First Paragraph

Claims 15-42 were rejected under 35 U.S.C. § 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which is pertains, or with which it is most nearly connected, to make and/or use the invention. Applicants respectfully traverse this rejection.

According to the Office Action, the applicant claims a method for increasing the absolute value of $\Delta P=2\gamma \cos\theta m/r$, but the disclosure would not allow one of ordinary skill in the art to be able to make and/or use the invention. Applicants disagree. As described above, a number of different methods for increasing the absolute value of $\Delta P=2\gamma \cos\theta m/r$ are provided in the specification. In particular, the examples provide specific methods of increasing the absolute value.

Any analysis of whether a particular claim is supported by the disclosure in an application requires a determination of whether that disclosure, when filed,

contained sufficient information regarding the subject matter of the claims as to enable one skilled in the art to make and use the claimed invention. *MPEP § 2164.01*. The standard to be applied is whether one reasonably skilled in the art could make or use the invention from the disclosures in the patent coupled with information known in the art without undue experimentation. *United States v. Telectronics, Inc.*, 8 USPQ2d 1217, 1223 (Fed. Cir. 1988).

In the present application, working examples have been provided along with a detailed explanation of how to increase the absolute value of the cited equation. In view thereof, Applicants respectfully submit that the disclosure would allow one of ordinary skill in the art to be able to make and use the invention.

The Office Action additionally states that the formula $\Delta P=2\gamma \cos\theta m/r$ is unclear because the applicant provides no method of calculation. However, page 12 shows five examples of how to carry out calculations using the formula. In view thereof, Applicants respectfully submit that the disclosure would allow one of ordinary skill in the art to be able to make and use the invention.

The Office Action further objects to inconsistencies in the use of the terms "absorbent article" and "article". Applicants have corrected this inconsistency in claim 1.

The Office Action further states that claims 16-28 are directed to limitations causing various values to increase or decrease, but that the applicant has failed to set forth how the absorbent article is initially treated to modify the value, let alone provide a reasonable means for one of skill in the art to increase or decrease the end result. As described above, the specification and examples teach how to increase and decrease the values recited in the claims. Given the information provided at pages 13-16 and the Figures, one reasonably skilled in the art could make or use the invention from the disclosures in the patent coupled with information known in the art without undue experimentation.

The Office Action further objects to the term "scaling edge" in claim 29. As indicated above, this typographical error has been amended.

The Office Action finally states that the applicant claims that the absolute value of $\Delta P=2\gamma \cos\theta m/r$ lies above the line $y=kx+m$ but it is unclear whether this limitation causes the value to increase or the value is increased by some other

means. This recitation of claim 29 is explained at length on pages 13 and 14 of the specification, which states:

> The invention also relates to an absorbent article such as a diaper or an incontinence guard that has improved sealing properties against a user and which has been produced so that in the case of at least a pair of the liquid barriers of the article, the absolute value of the product $2\gamma \cos\theta m/r$ will be higher than that obtained when using earlier known absorbent articles. More specifically, during the greater part of the interval 20-40% available elongation or stretch, preferably during the major part of the interval between 15 and 50%, and particularly during the major part of the interval between 10 and 80% available elongation, the absolute value y of the product $2\gamma \cos\theta m/r$ will lie above line $y=kx+m$....

Page 13, line 26 - page 14, line 4 (also see Figure 5c).

Thus, as explained in the specification, the absorbent article is produced so that the absolute value of the product will be higher than that for conventional articles, which provides improved sealing properties. In view thereof, one reasonably skilled in the art could make or use the invention from the disclosures in the patent coupled with information known in the art without undue experimentation.

Since each of the objections listed in the Office Action has been addressed and one of skill in the art could make and use the claimed invention from the disclosure of the specification and drawings, Applicants respectfully request that these rejections be withdrawn.

Second Paragraph

Claims 15-42 were rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Applicants respectfully traverse this rejection.

Regarding claim 15, the phrase "such as" which was objected to has been amended. As to the recitations objected to due to insufficient antecedent basis, Applicants have addressed such recitations as believed helpful to expedite prosecution of the application. As to those recitations not amended, Applicants point to MPEP § 2173.05(e) which states that failure to provide explicit antecedent basis for terms does not always render a claim indefinite. The standard is whether

the scope of a claim would be reasonably ascertainable by those skilled in the art - if so, then the claim is not indefinite. *Ex parte Porter*, 25 USPQ2d 1144, 1145 (BPAI 1992). For example, inherent components of elements recited have antecedent basis in the recitation of the components themselves. *MPEP § 2173.05(e). Also see Bose Corp. v. JBL, Inc.*, 61 USPQ2d 1216 (Fed.Cir. 2001) ("there can be no dispute that mathematically an inherent characteristic of an ellipse is a major diameter").

Section 2173.05(e) of the MPEP is particularly relevant to the present application. For example, the wearer inherently has a body, an anus, an urethra orifice and skin. Thus, these recitations do not require antecedent basis other than the "wearer". An equation inherently has an absolute value and a liquid inherently has surface tension and a particular wetting angle against a particular material. A circle inherently has a radius and a particular opening, as defined by the pore formed by the sealing edge against the wearer's skin will inherently have only one largest circle that can be encompassed therein. "The given available elongation" has antecedent basis at line 20 of claim 15. The weighted mean value of $\cos\theta$ has antecedent basis in the equation. In view of each of these terms having either explicit or inherent antecedent basis, Applicants respectfully submit that claim 15 as amended meets the requirements of 35 U.S.C. § 112, second paragraph.

Applicants further submit that the comments in the Office Action relating to alleged antecedent basis problems with claims 23-29 and 35-42 have been addressed by the above comments and amendments. Antecedent basis is present for each of the terms objected to either specifically or inherently. In view thereof, Applicants respectfully request that the rejections under 35 U.S.C. § 112, second paragraph, be withdrawn.

CLAIM REJECTIONS - 35 U.S.C. § 102(e)

Claims 15 and 42 were rejected under 35 U.S.C. § 102(e) as being anticipated by Schulte et al., U.S. Patent No. 6,156,024. Applicants respectfully traverse these rejections in view of the Declaration Under 37 C.F.R. §1.131, submitted herewith, illustrating the reduction to practice of the claimed invention prior to the earliest publication date of Schulte et al. Applicants note that the

Exhibits have been redacted only to eliminate extraneous information. In view thereof, Applicants respectfully request that the rejections over Schulte et al. be withdrawn.

Applicants believe they have responded to all matters raised in the above referenced Office Action and that the application is now in condition for allowance. If the Examiner has any questions concerning this Application or this Reply and Amendment, the Examiner is invited to contact the undersigned.

Respectfully submitted,

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Attachment to Am ndment dated March 20, 2002,
Marked-up Copy
Page 8, Paragraph Beginning at line 4, and ending at line 19

On page 8, please replace the paragraph beginning at line 4 and ending at line 19 with the following:

As shown in Fig. 1b, a measuring operation is carried out by securing a liquid barrier around the outer periphery of the first semi-cylindrical element and fastening said barrier around the upper edges 6. The elastic part 7 is directed towards the attachment of the semi-cylindrical element to the support plate **b**, and the liquid barrier material is folded around the end-wall 1' of the first semi-cylindrical element 1 on the other side. The elastic part is fastened along the scale 11 on the semi-cylindrical element so as to enable the available elongation or stretch to be read-off. The end-wall 5' of the second semi-cylindrical element 5 is placed against the end-wall 1' of the first semi-cylindrical element with said upfolded part of said barrier material 8 located therebetween and pressed thereagainst with the aid of a clamp 10, such as to obtain a small clearance 9 between the cylindrical walls. Synthetic urine is introduced through the vertical tube 3. The liquid barrier is first weighted down so as to fill the clearance between the semi-cylindrical elements. A liquid pressure is thereafter built-up against the elastic edge 7 at the same time as a liquid column is formed in the tubes 3, 4, where the pressure can be read-off. Liquid is introduced until leakage occurs at arrow B (Fig. 1c) at the breakthrough pressure.

Attachm nt to Amendment dated March 20, 2002

ABSTRACT

A method of improving in an oblong absorbent article that includes a liquid-impermeable bottom sheet, an upper liquid-permeable sheet and an absorbent body disposed between these sheets, and on each side of the longitudinal center line of the upper sheet at least one longitudinal elastic liquid barrier, the sealing effect afforded against the skin of the wearer by at least one liquid barrier on each side of said centre line by causing the absolute value of the negative produce $2\gamma \cos\theta m/r$ in this liquid barrier to increase. A method of increasing in an absorbent article that includes an essentially liquid-impermeable top sheet above an absorbent body enclosed between an upper liquid-permeable sheet and a liquid-impermeable sheet, the top sheet being provided with elastic for shaping the article to the wearer's body and incorporating apertures intended to register with the anus and the urethra orifice of a wearer in use, around which apertures elastically puckered sealing edges are disposed, the absolute value of the negative product $2\gamma \cos\theta m/r$ for at least one sealing edge. An absorbent article where the absolute value of the product $2\gamma \cos\theta m/r$ for at least one liquid barrier on each side of the centre line of the absorbent body or for at least one sealing barrier lies above the line $y = kx + m$, where x designates the available elongation, k has the value -14/30 and m has the value 48 within the major part of an available elongation range of between 20 and 40 %.

Attachment to Amendment dated March 20, 2002
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Amended Claims 15, 26, 29, 35, 36, 42

15. (Amended) A method of achieving in an absorbent article[, such as a diaper or an incontinence guard,] that includes an absorbent body disposed between a liquid-impermeable bottom sheet which is intended to lie distal from [the] a wearer in use, a liquid-[impermeable]permeable upper sheet which is intended to lie proximal to the wearer, and either 1) at least one longitudinally extending liquid barrier on each side of [the] a center line of the upper sheet made of essentially liquid-impervious material and fastened along or adjacent to a respective longitudinally extending side extremity of the absorbent article and comprising a free elastic sealing edge intended to be stretched against the wearer, or 2) above the upper sheet, a top liquid-impermeable sheet which is intended to lie against the wearer, includes elastic for shaping the article to the wearer's body, and includes apertures intended to lie in register with the anus and the urethra orifice of the wearer, around which apertures elastically puckered sealing edges are disposed in the top sheet,

an improved sealing ability against the skin of [an intended] the wearer, at a given available elongation, by at least one sealing edge on each side of the center line, comprising modifying or treating the absorbent article in such a way as to cause the absolute value of $\Delta P=2\gamma \cos\theta m/r$ for said sealing edge to increase, where γ designates the surface tension of [the] a liquid to be absorbed by suction, r designates the radius of the largest circle that can be encompassed in any pore with walls formed by said sealing edge against the wearer's skin at the given available elongation, and $\cos\theta m$ is the weighted mean value of $\cos\theta$, where θ is the wetting angle of the liquid to the [material in] sealing edge or the skin comprising the pore walls[, while taking into account the different materials in the walls of this largest pore].

26. (Amended) The method according to Claim 25, comprising treating said sealing edge such that a higher wetting angle of the liquid to the [barrier material] sealing edge comprising the pore wall will be obtained and/or such that a higher wetting angle of the liquid to the skin of the wearer will be obtained within those regions in which said sealing edge lies against the skin when the absorbent article is donned.

29. (Amended) An absorbent article that includes an absorbent body disposed between a liquid-impermeable bottom sheet which is intended to lie distal from [the] a wearer in use, a liquid-permeable upper sheet which is intended to lie proximal to the wearer, and either 1) at least one longitudinally extending liquid barrier on each side of [the] a center line of the upper sheet, made of essentially liquid-impervious material and fastened along or adjacent to a respective longitudinally extending side extremity of the article and including a free elastic [scaling] sealing edge intended to be stretched against the wearer, or 2) above the upper sheet, a liquid-impermeable top sheet which is intended to lie against the wearer, includes elastic for shaping the article to the wearer's body, and includes apertures intended to lie in register with the anus and the urethra orifice of the

wearer, around which apertures elastically puckered sealing edges are disposed in the top sheet where, in respect of at least one [scaling] sealing edge on each side of the center line of said absorbent body, the absolute value of $\Delta P=2\gamma \cos\theta m/r$ lies above [the] a line $y=kx + m$, where x designates the available elongation of the sealing edge, k has the value -14/30 and m has a value in the range of 48 to 69, within the major part of an available elongation range of between 20 and 40 %, and where γ designates the surface tension of [the] a liquid to be absorbed, r designates the radius of the largest circle that can be enclosed in any pore with walls formed by said sealing edge against the skin of the wearer at a given available elongation, and $\cos\theta m$ is the weighted value of $\cos\theta$, where θ is the wetting angle of the liquid to the [material in] sealing edge or the skin comprising the pore walls [while taking into account the different materials in the walls of this largest pore].

35. (Amended) The article according to Claim 29, wherein said free sealing edge includes a layer of a material such that a higher wetting angle of the liquid to the sealing edge material will be obtained and/or such that a higher wetting angle of the liquid to the skin of the wearer will be obtained within those regions in which said sealing edge lies against the skin and where said material smears the skin when the absorbent article is donned.

36. (Amended) The article according to Claim 29, wherein said free elastic sealing edge is provided with a layer of a material which at least partly fills out the pores in said free sealing edge when the article is donned.

42. (Amended) The article according to Claim 41, wherein the available elongation range is 10-60%.